

Pre-class activities

Naive Bayes Classification

Emmanuel Rachelson

1 Cluedo

British people write “rigour” while US citizens write “rigor”. A suspect in a hotel wrote this word on a piece of paper, then burnt it and left it behind to be found by the police. Only one letter remains readable; it is a vowel. It is known that 40% of the hotel’s clients are British and 60% are Americans.

- ☞ What is the probability the suspect is British?
- ☞ Suppose now there are more than two english-speaking nationalities staying in this hotel. What part of the previous calculation is unnecessary to establish the most probable citizenship of the suspect?

2 [Optional] Quality check

In a manufacturing line, 1% of the production has a defect. A performance test allows to filter out 95% of faulty products but also excludes 2% of acceptable ones.

- ☞ What is the probability of a control error?
- ☞ What is the probability of a letting a faulty product go through?